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FAA GENERAL AVIATION NEWS

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BRIEFS

BARGAIN PARTS have proved to be no bargain for owners of vintage aircraft who have problems obtaining replacement components for their early model aircraft that are FAA-approved. Recently unapproved wing lift strut forks of clearly inferior workmanship were discovered on Piper model 12 and 14 aircraft when these vital parts were removed for a routine inspection. Advertisements for hard-to-get parts at low prices appear frequently in aviation publications. Pilots who want guidelines for standards of aircraft components should send for a free Advisory Circular, 20–62C, "Eligibility, Quality, and Identification of Approved Aeronautical Replacement Parts," from DOT Publications Section, M–443.1, Washington, DC, 20590.

SHELLING OUT. Shell Oil is closing its east coast Avgas distributorship by the end of 1980 for lack of a refinery. About 30 fixed base operations in the northeast will be affected; it is not expected that the slack will be fully taken up by other manufacturers. Pilots flying in the area next year would be wise to check availability of Avgas at their destinations before takeoff.

NOT SO SWEET LANDINGS. Grabbing a chocolate bar for a burst of energy in flight may not be such a good idea, especially if you have been flying at high altitudes without supplemental oxygen. Recently, a pilot who had flown 90 minutes at 12,500 to 13,000 feet became disoriented when he descended and turned to land, nearly losing control of the aircraft. His only meal for the day was a candy bar, eaten en route. Investigating aeromedical doctors believe that the disorientation was brought about by a combination of hypoxia and hypoglycemia (low blood sugar)—the latter condition caused by eating candy on an empty stomach. Balanced meals are best for optimum piloting.

PITTED PROPS. This being the season of aircraft inspection and servicing for many agricultural operators, it is important not to neglect the condition of the propeller. In two recent accidents, corrosive pitting by agricultural chemicals caused propeller fatigue cracks that went unnoticed until the propellers separated from the aircraft in flight. Both pilots were fortunate to survive. Most manufacturers recommend that propellers on agricultural aircraft be removed from hubs and inspected every 18 months, and overhauled at given intervals.

MILITARY CONFLICTS. 'Tis the season for shorter daylight hours and long shadows. If you fly near or in areas of low-altitude, high-speed military operations, poor light could make it more difficult to see high-speed military aircraft on maneuvers at your altitude. Sectional charts, flight service stations, and the AIM have information on the locations of military training routes and hours of operation. Full details are in FAA Advisory Circular 210–5A, "Military Flying Activities" (free from DOT Publication Section M–443.1, Washington, DC, 20590). Civilian pilots are in a much better position to avoid conflicts than military airmen.

VFR at Night

Darkness + Moisture = Nightmares

Night flying tends to become more frequent during the winter months, when the daylight hours are fewer. There is no evidence to prove that the night environment is less safe than daytime, but there are some strong indications that many low-time, non instrument-rated pilots are being victimized by certain night weather conditions beyond their competence.

According to reports of the National Transportation Safety Board during the 12 calendar months of 1978, some 61 non instrument-rated pilots crashed in flight or when approaching to land, as a result of deteriorating weather even though they took off in VFR conditions. These were pilots of all ages, from all walks of life, using a variety of aircraft. Their average logged time was less than 900 hours; few held a certificate higher than private pilot.

The predominant factor in the accidents was *worsening visibility*. In many cases the weather was actually above VFR minimums at the destination airport, but the pilot encountered en route patches that were marginally VFR or worse. Consequently the pilots were unable to maintain positive reference to the ground. It is often possible to maintain VFR in the daytime despite the presence of fairly low ceilings, precipitation, haze or smoke, but night VFR is another matter. These phenomena tend to soak up available light, and to screen out terrestrial as well as celestial illumination, often to the extent that continued positive visual reference to the ground is impossible. Unwary pilots stray off course, miscalculate their position and collide with the ground. The death-toll of these VFR-at-night accidents is frightening. Fifty-four of the sixty-one reported for 1978 were fatal, resulting in 120 fatalities. This is a fatal accident rate of almost 90 percent.

A grim example of this type of accident occurred on November 22 in the Shenandoah Valley of western Virginia. The 60 year old pilot, who had accumulated about 2,000 hours, had no instrument rating and no limitations other than wearing glasses for night vision. He was flying a Beech *Bonanza* out of Shenandoah Valley Airport, which is centrally located in the valley at an elevation of 1,201 feet. To the east the Blue Ridge mountains rise to nearly 4,000′ and the slightly higher Massanuttens lie to the west. A characteristic bluish haze frequently obscures the ridges and sometimes extends over the valley.

The round trip flight to Charlotte, N.C., had originated that morning in clear weather. The pilot picked up two friends at the airport in Charlotte and departed at 4:22 p.m. The current area forecast called for ceilings of about 2,000′ with visibility five miles in haze. Ceilings were expected to be marginally VFR after 7:00 p.m.

An hour after taking off, the *Bonanza* pilot, who had not filed a flight plan, contacted Roanoke Approach Control and requested weather information for Shenandoah Valley Airport. (The airport is about 50 miles north of Roanoke.) The controller explained that he could only give weather for the Roanoke area, where VFR flight above 4,000′ or 4,500′ appeared doubtful. The *Bonanza* pilot was advised that Roanoke FSS might have some more specific information about weather in the valley or around Shenandoah Valley Airport (there was no weather station at the airport at the time).

However, the *Bonanza* was unable to contact Roanoke FSS, and about five minutes later reported back to Roanoke Approach Control and requested radar surveillance. Radar contact was established at seven miles northeast of the Henby intersection, altitude 5,500′. The pilot was advised to advise Approach Control if he changed altitude. After confirming the frequency for the flight service station he made several more attempts to contact Roanoke FSS, without success.

Shortly before 6:00 p.m. the *Bonanza* was advised that radar advisories from Roanoke could no longer be provided, and advised to contact Washington en route traffic control center. The pilot acknowledged. No further transmissions were received from the *Bonanza* by Air Traffic Control. →

Night approach to Shenandoah Valley Airport. Haze and fog shroud the Massanutten Mountains to the west. Combination of fog and haze results in indeterminate visibility and obscures landmarks.

Shoshone Valley in western Wyoming, one of the VFR routes between Cody and Jackson Hole.

At 6:20 p.m. Roanoke Approach Control made several unsuccessful attempts to contact the aircraft, which had disappeared from the radar scope. There was no reply.

By this time it was pitch dark in the valley. The *Bonanza* had continued northbound, but apparently the pilot was unable to see the lights of his destination airports under the layer of haze and strayed off course. The aircraft was located six days later, 200 feet below the ridgeline of the Massanutten Mountains, at an elevation of 4,100'. All three occupants had perished on impact. A flight which might have experienced little trouble during daylight hours turned into a tragedy after dark.

Fog

The most frequently mentioned obstruction to vision at the site of night flying accidents is *fog*. The pilot who is flying VFR at night under a relatively low ceiling must depend upon visual reference to maintain a safe altitude above the ground. At night fog has a way of insidiously masking the outlines of hilltops, towers, wires, etc. Fog also has a nasty habit of materializing unexpectedly after dark whenever the terrain cools off sufficiently and there is moisture present in the air. The pilot who elects to fly VFR at night, under a marginally low ceiling, by hugging the contour of the earth, is a likely victim of this phenomenon.

On October 1 a 19 year old pilot in a Cessna 152 landed at Franklin-Wilkins Airport, in Lexington, Ky., shortly after 5:00 p.m. He was completing a cross-country round trip flight, Cahokia, Ill., to Little Rock, Ark., and return in preparation for his commercial certificate. The forecast for the next segment of his flight, to Nashville, indicated below VFR minimums, and the pilot was not instrument-rated. The forecast for Nashville at his ETA was, *Ceiling 500 feet overcast, visibility two miles, rain showers, fog.*

The manager of the airport at Lexington, which is attended during daylight hours only, offered to drive the pilot into town so that he could find lodging for the night. However, the pilot decided he would get some sleep in the airplane and be ready to take off as soon as the weather broke. The manager locked up his office at 7:00 p.m. and left.

Using the Cessna's radio, the pilot contacted the flight service station at Jackson, Tenn., several times during the evening requesting Nashville weather. Instrument flying conditions persisted. At 12:15 a.m. the pilot called the Memphis FSS by telephone and was given the updated Nashville weather report and forecast. Nashville was now marginally VFR (*500 feet scattered, 2,000 feet overcast, five miles visibility*). The forecast called for continued improvement up to 4:00 a.m., and then worsening from ground fog. The pilot indicated he would "just as soon go now as anything" and took off.

However, the Nashville forecast was amended at 1:22 a.m., calling for a variable ceiling 200 to 300 feet obscuration, visibility one-half to two miles, fog. An official observation at Nashville thirty minutes later reported, *Ceiling measured 300 feet broken, 2,000 feet broken visibility two miles, fog, temp 62° F.* There is no indication the pilot was aware of the amended forecast.

The flightpath from Lexington took the pilot over a sparsely settled wildlife refuge area along the Tennessee River, a damp and humid area. The adjoining terrain is hilly and wooded. The aircraft was not heard from again. A week long search of the area between Lexington and Nashville turned up nothing.

Six weeks later a party of hunters came across the aircraft wreckage and the deceased pilot at a site estimated as 20 miles northeast of Lexington. The 152 had crashed in a flat attitude on a heading of 290°, suggesting that the pilot may have encountered fog between Lexington and Nashville, attempted to turn back and struck a hillside in the dark. He had logged a total of 134 hours, 4.4 at night.

Icing is another worrisome hazard to pilots who attempt VFR night flights when weather reports show significant moisture in the environment. Especially in winter, an aircraft that descends rapidly from altitude to a warmer, moist level may receive an immediate coating of ice, which could impair aircraft performance at a critical phase of flight. The pilot may be unable to see the ice buildup in the dark, and fail to compensate for it. In some cases following such a descent, the aircraft windshield has iced over abruptly, producing an "instant IFR" condition for a very startled pilot.

Ice

A case in point involved a physician who was flying a Grumman American *Tiger* over the Teton Wilderness Area of western Wyoming. The 55-year old doctor had practiced in Cody, Wy., but was now living semi-retired in Jackson Hole. He had developed an interest in flying, and frequently flew over to visit his married daughter who lived in Cody; this was to be his annual Christmas visit.

He had planned to take off in the *Tiger*, which he owned, on the morning of December 23, but he was called to the hospital in Jackson to attend the victim of a skiing accident, and did not get back to the airport until after noon. By this time Cody was reporting, *Ceiling indefinite 2,000 feet obscured, light snow showers in the area, visibility one and one-half miles.* The doctor sat patiently in the pilot's lounge and read a magazine until the next report came out, at 3:15 p.m. The weather at Cody had improved slightly, although it was still no better than marginally VFR.

The doctor was not instrument-rated and had logged less than 200 hours, but he knew the route well. He chief concern was the weather over the higher portions of his route. His normal flight path took him over the 10,000 foot mountains that rimmed Jackson Hole to the east and on to the Dunoir VOR. Then he would track outbound from Dunoir on the 060 radial until he picked up the South Fork of the Shoshone River and followed it into Cody, descending with the terrain and following the river to avoid the sheer slopes that rose over 12,000' on either side. There is no weather station in the area.

He telephoned the flight service station at Worland, on the eastern side of the mountains, and asked for en route reports and a forecast. The forecast indicated deteriorating weather conditions overnight over the entire route, with sleet or snow showers by morning. Two recent pilot reports indicated VFR weather over Dunoir, with fair to good visibility as far as Cody. However, VFR flight was not recommended because of the forecast.

The doctor commented that a snowstorm in the mountains at this time of year could last for days. He could see no harm in going as far as the Dunoir VOR to take a look. If the valley leading to Cody looked bad, he could always return to Jackson Hole. If he left at once he could complete the 100 mile flight before the light faded. At 3:33 p.m. he filed his flight plan and took off immediately. The air was fairly smooth and visibility was good as far as Dunoir. At 4:27 p.m. he reported over the VOR at 12,500 feet and stated he had begun a descent on the 060 radial. The Shoshone Valley appeared dusky in the distance, but he was experiencing no difficulty in maintaining VFR and

he knew Cody was less than an hour away. The mountain peaks were heavy with snow and the *Tiger*'s outside air thermometer read minus 40° F. He turned the cabin heat up full. He noticed it did not seem to be putting out its normal warmth.

At 4:37 p.m. he radioed that he was at 8,000 feet and descending with the terrain, flying approximately 1,000 feet above ground, which was covered with snow. He reported some "light intermittent snow showers," and said he had a solid overcast at about 5,000 feet, but the valley ahead looked like it had better visibility.

The transmission was broken off abruptly at 4:42 p.m., and resumed at 4:45 p.m. At this point the pilot stated that his windshield had become completely coated with ice, and the wings appeared to be icing up. He said he had lost control and started to spin and had recovered after some loss of altitude. He could only see out of his side canopy. He was uncertain of his position relative to the terrain. He was attempting to maintain his altitude with a shallow turn, but was concerned about his proximity to the slope. At one point he thought he saw green and red lights on the ground.

The aircraft's transmissions now became progressively weaker. The FSS attempted to get a bearing on the aircraft with Direction Finding Equipment but were unable to do so. The last transmission was recorded at 4:58 p.m.

A statement from a witness on the ground, who was a pilot and owner of the airstrip and cattle feeding station at Skytop, indicated that he had heard an aircraft overhead at approximately 4:30 p.m. but had not paid any attention to it until he heard a sudden power surge and then saw the airplane begin to fly in a circle, when he realized the pilot was in trouble. He then pushed his own aircraft, a Cesna 180, out of the shed and turned on the navigation lights and rotating beacon, so the pilot would know someone was there. It was beginning to get dark, and snow was coming down. He stated:

I sent my boy with the tractor down to the airstrip, which is on a piece of benchland on the side of the mountain, and I told him to stay there with his CB on, and point the headlights straight down the runway. Then I turned the UNICOM radio on and kept transmitting until I picked up an answer, something like ". . . anyone down there?"

I told him this was Skytop, and who we were and that we had a landing strip he could use if he needed it, 2,600 feet lying 07–25, and not too much snow on it. He told me he was iced up pretty bad and couldn't see anything out of his windshield. He had the heater full on but it wasn't helping. He was flying in a circle, just barely holding altitude and he had seen my 180's nav light once or twice out of his side window, thought he was seeing things at first.

While he was talking I took my mike through the window and went outside and I could see him pretty close to the side of the mountain. I told him I could steer him toward the runway and all he'd have to do was watch his altitude and airspeed, and he said "Fine."

I told him to look for the tractor when he came in close and keep a couple of winglengths to the right, and he rogered that too.

Then I began to turn him so he could line up with the runway, but it was hard because he was maybe half a mile away, with some snow coming down and the light fading, and the threshold was about 200 yards from where I was standing, and I couldn't move any closer because of the microphone. I could see how high he was pretty well, but I couldn't tell where he was. But I could talk to my boy on the CB, and between the two of us we got him lined up for 07, which is really the only way to land because it is uphill on the open bench against the slope, and the mountain will stop you if you overshoot. But if you come in short you're in bad shape.

The pilot was worried because he couldn't see the tractor after we lined him up, but I kept telling him that was okay, the boy could see him, and he was talking to me. I told him to watch his instruments, keep his wings level and airspeed a little better than normal glide because of the ice, and just keep coming, not to pull off the power till he saw the boy, and not to pull up, because there wasn't light enough to go around even if he could make it with all that ice.

Then I saw him coming up on the tractor, with the boy waving like crazy and yelling at me Okay, Okay, he's got it. I told him to chop the power which he did and the airplane settled down and bounced a few times but rolled out okay up against the slope. My boy went over and got him in the tractor and brought him in. The pilot said it was zero-zero all the way; he'd been too busy holding steady to even try to look out the side at the end. He said he was a doctor, and he thought my boy's ears had got frost-bitten because he'd been waving his cap all the time, and he gave him some salve in case they hurt later. He looked pretty played out himself. He said he'd been ready to give up the ghost until he saw the nav lights on that old 180 of mine, and that was the prettiest Christmas ornament he ever hoped to see. He said we did a great job bringing him down, in fact he said it seemed like a real miracle.

Next morning we took him down to the valley where he could phone his family in Cody, and they drove up and got him.

Clouds anywhere on the horizon are a bad omen at any time of year for the VFR pilot who is contemplating a night flight. Any unexpected or freakish change of weather can "pull the plug" on your source of visual reference. And miracle rescues are rare, even at Christmas. ■

Data for the accidents described in this article was drawn from reports of the National Transportation Safety Board. Certain details of the latter accident have been altered.

WEATHER WATCHERS

A pilot's eye view of official observers

Weather observing, as a traveler's aid, is an ancient skill dating back at least 35 centuries to Phoenicia in 1500 B.C. Even after all these years, it is still regarded as an inscrutable art or unfathomable science by many people, including some airmen. Perhaps this is because for many centuries reading the heavens, like reading the stars, was a secretive lore belonging only to seagoing pilots who enjoyed special honors (like Blackthorne in the novel *Shogun*). The dissemination of weather data over large land areas began only in 1653 when the Grand Duke of Tuscany set up 11 observing stations in northern Italy and central Europe. Contemporary inventions, like Galileo's thermometer and Toricelli's aneroid barometer, enabled observers to record temperature and air pressure as well as wind speed and direction and sky condition—essentially the same observations that are made today.

Speedy foot messengers or horsemen carried reports from the "Florentine Network" to market centers where travel conditions could affect the price of goods being traded. The accumulated data was compiled in the archives of the Academy of Experimentation in Florence.

A century later, Benjamin Franklin in the New World developed his own informal observation net, consisting of friends with whom he corresponded and shared notes on observed weather. The information he amassed, however, was only to satisfy his scientific curiosity. He could see no way to spread the information quickly enough for it to be useful to ordinary people. However, the invention of the telegraph in 1843 changed that situation radically.

With the aid of telegraph and radio communications, the network of weather observing stations has now grown to nearly 7,000 worldwide, with 1,300 civilian stations in the United States alone. All stations are linked by telephone, teletype, or computer to FAA flight service stations, which use the information for compiling hourly weather broadcasts and for pilot briefings. Eventually all weather information reaches the National Meteorological Center in Washington, DC and is incorporated into forecasts that are also derived from weather radar, satellite photography, and computers.

A weather *observer* differs from a *meteorologist* both in terms of experience and what he can do. A meteorologist, whose training takes years of specialized study, forecasts forthcoming weather patterns from the movement of fronts and high and low pressure areas. An observer, who is trained and certificated in one week, may take limited aviation weather observations and can only report what he sees.

Most of the approximately 11,000 certificated observers in the United States are employed either by the National Weather Service or FAA. Others make observations on contract with the Weather Service or work for a local air carrier. Private observers usually telephone or teletype (if so equipped) their observations to an FSS, although it is not a requirement. Contract stations are provided teletype equipment to ensure their information is available to pilots via the FSS.

An air carrier (Part 135 or 121) instrument approach can only be made when a certificated weather observer is based on the field. Part 91 (general aviation) instrument pilots can also avail themselves of the observation, either from an associated FSS or directly from the observer if they know how to contact that individual. (A Part 91 instrument approach to an airport without an official observer is *legal*, providing that a nearby altimeter setting is known.)

Even if there is no weather observer at a small uncontrolled airport, pilots can sometimes interpolate data by comparing observations for nearby airports. Knowing whether your destination airport has an ob-

server is an important safety factor in planning a flight under changing weather conditions, which is most of the time.

Getting an idea of the weather at nearby airports is also a good yardstick for deciding whether or not to take off in marginal conditions. For example, a pilot could find himself above a cloud layer shortly after leaving the pattern and not be able to see the airport for a return landing if he should decide not to continue. Accidents have happened when pilots experienced minor mechanical problems after takeoff and were unable to land without penetrating clouds and losing control of the aircraft.

Since weather stations and flight service stations are all linked to each other via teletype or computer, it is easy for the briefer to "punch up" the weather observation for airports many miles from his location, and give the pilot precise en route data. On a long crosscountry, having the observations for numerous airports along the route could paint a meaningful picture of progressive weather movement.

The crux of modern weather observation is in its currency. Forecasts are valid for as long as 24 hours, but an observation for aviation purposes must have been taken within 15 minutes of the time it is made available to pilots for the first time and is valid for only one hour. The time of the observation is the time the last element (altimeter) is evaluated. Full time observers take hourly observations, but others, notably the Part 135 observer (only about 300 in the U.S. observation net), may take observations whenever it is necessary—when a company plane is due to arrive, for instance. This is not to say that if some other pilot knows the company frequency and calls in asking for the weather that the observer will refuse him. Although an observation taken by a private observer is essentially for a company's use only, it must be divulged on request of a flight service station or the Weather Service. It is also unlikely that the observer would withhold the information from a pilot who needs it.

The observation station itself may be a well-equipped flight service station, Weather Service office, small fixed-base operation with minimal equipment, or even a private home—literally anywhere the observer hangs his certificate. Weather observer training is available to pilots, mechanics, line boys, ticket agents, anyone at all who is sponsored by an operator or government agency. An eye examination similar to that given for a driver's license is required, in addition to class attendance for one week and successful completion of a final examination.

An observer may be a meteorologist as well, but when observing he cannot employ his forecasting ability; he can observe and report, nothing more. A tower-controlled airport that has no FSS or Weather Service tieline may have a qualified observer in the tower. A trained observer must make at least one official observation every 90 days to remain current. If not, the certificate is cancelled.

In most cases, the weather observing duties are part of the observer's regular occupation at the FSS or weather office, and he receives no extra compensation for it. Remuneration for the private observer has to be worked out between him and the aircraft operator who employs him.

Weather observations for surface aviation weather reports contain the same elements regardless of the observer who takes them. The place of the observation comes first, in the form of the station identifier, a three or four letter/number assigned to the airport or station. The time (Greenwich Mean) is recorded next; then comes the type of observation, either the hourly report surface aviation (SA), special (SP), or local (L).

The observed weather is given as follows: sky condition and ceiling, visibility, any significant precipitation or obstructions to vision, temperature in degrees F, dewpoint (if required), wind direction, wind speed in knots and character, altimeter, supplemental data explaining other elements, station pressure in millibars (if required), and sky cover. The observer then initials the report as his testament to its accuracy.

In a special column for remarks, the observer explains portions of the observation, and that explanation is also included in any transmission to pilots. For example, if the visibility is less than seven miles, the observer must report what has caused it: fog, rain showers, etc. The observer can also include in his remarks any information he feels pertinent to the observation, such as the amount of precipitation, the presence of ice on the runway, or the presence of certain types of significant clouds.

Special (SP) observations are taken at a time other than the normal observation period and under certain designated circumstances. Specials are made at the appearance of tornadoes, thunderstorms, funnel clouds, or water spouts, or whenever the observer feels a particular weather phenomenon or situation should be reported.

Local (L) observations are taken for an airport when its weather goes below the published minimums for an instrument takeoff. A local is always required as soon as possible after an aircraft accident at the airport or in the vicinity.

Here are some examples of surface aviation observations:

DCA 1300 SA CLR 7 56/49/2305/999

Translation: Washington National Airport, 0900 EDT, surface observation, sky clear, visibility seven, temperature 56, dew point 49, wind from 230 at five knots, altimeter 29.99.

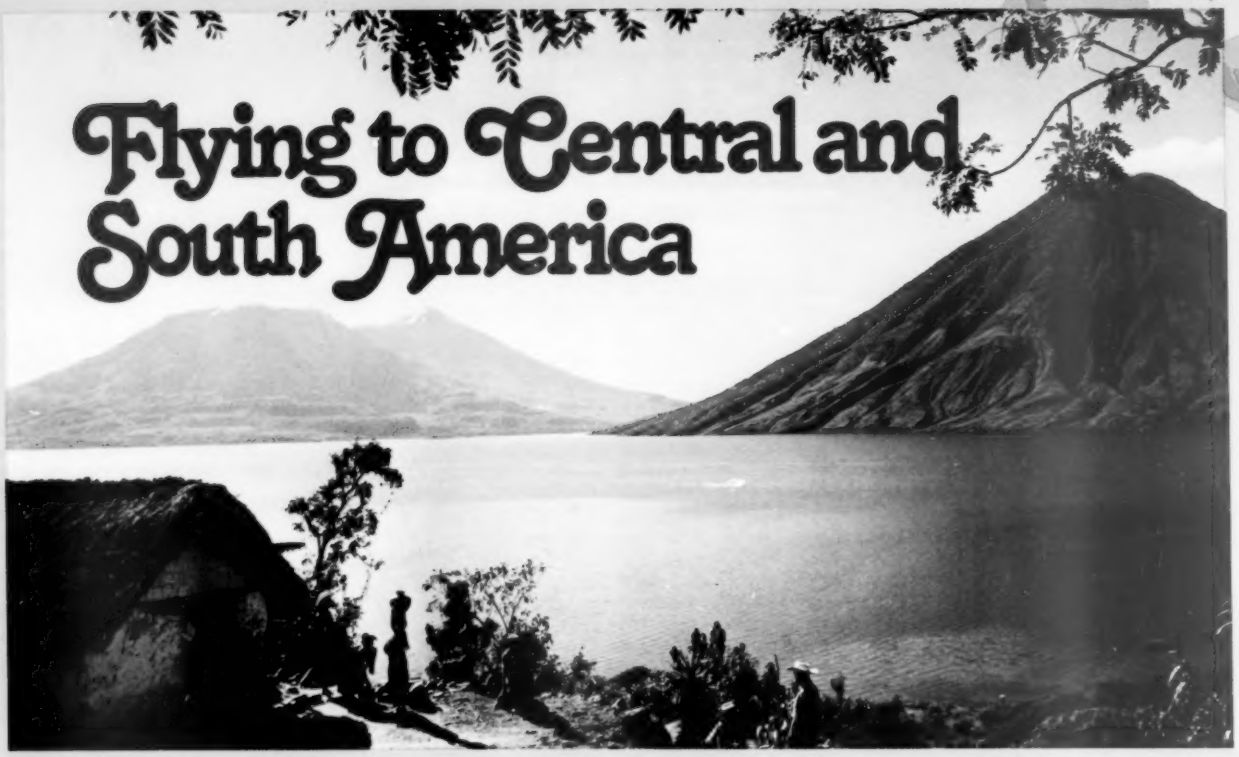
DUL 2400 SA 50SCT M100BKN 8 63/52/2410/995

Translation: Washington Dulles Airport, 1800 EDT, surface observation, 5,000 scattered, measured 10,000 broken, visibility eight miles, temperature 63, dewpoint 52, wind from 240 at 10 knots, altimeter 29.95. ■

(A following article will discuss the manner in which observations are made and their significance to pilots.)

Sky cover as seen from the cockpit often appears very different from ground observation. Pilot between cloud layers may have good lateral visibility while the ground is completely hidden.

Photo courtesy Pan American World Airways.



Flying to Central and South America

An Adventure in more than one sense of the word

The coming of winter signals an annual migration of hundreds of North American winged bipeds (genus aviators/aviatrices; species, general aviation) to Central and South America. They flock south in search of the sun, new horizons and airborne adventures. The storied mountains of the Yucatan and the Incas beckon. There is no lack of novelty and excitement south of the border, but some of the footloose pilots inevitably return to the U.S. in a mood closer to frustration than to fulfillment. The cause of their disenchantment can be expressed in three words—*lack of preparation*. The people of Latin America are, in the main, very friendly and their air safety regulations are based on our own. However, they *are* different nations, with different languages and many unfamiliar customs, habits, and rules which are not easily learned and complied with by a North American used to fast travelling and few delays.

The general aviation pilot, for example, who elects to fly across the United States from Los Angeles to Boston, a distance of some 3,000 miles, can reasonably expect to complete the journey within a week, allowing for about one day out of five on the ground due to poor weather. He can prepare for the trip with a few hours of flight planning, daily weather briefing and some inquiries en route. If that same pilot sets his eyes southward for a journey of similar distance, say from El Paso to Ecuador, with the same minimal planning, he is likely to be a month or more en route—and decide to return commercial. In traversing a dozen sovereign nations, instead of united states, he will have learned some important lessons on the following subjects:

•**Politics.** A state border may be of little consequence to an air traveller, but a *national* border can be as impenetrable as a brick wall extending to infinity. Landings or overflights without prior approval can lead to fines, confiscation, incarceration or other serious consequences. Bureaucratic red tape is never predicated on national significance, and may be in inverse proportion. The designated *airports of entry*, which must be your first touchdown point, are not always heavily staffed and officials may be difficult to find during a *siesta* or *fiesta* period.

Deviations from a flight plan may result in lengthy official inspections and delays on the ground. Common use of general aviation aircraft for drug smuggling makes them suspect by authorities.

Most Latin American countries require visiting pilots either to obtain a special permit to overfly or land, or to send an advance notice of intending arrival. A few will accept an international flight plan. In any case you should attend to this matter well in advance of your anticipated arrival—as much as ten days or two weeks—in order to allow for delays in transmission and processing. If you send an advance notice of flight plan, you should also be careful to carry with you a copy of the document, just in case the original does not turn up at the airport of entry you selected. (Permits and advance notices must pass through the office of the Director of Civil Aviation in the capital city of each country involved.) U.S. pilots should realize that carrying out a flight other than in strict accordance with the flight plan could lead to detention. The pilot would have the burden of proving that the variation in flight course was not related to an illegal operation (i.e., drug running).

The pilot who flies from Los Angeles to Boston need carry no more documents than needed within his own state, but the traveler to Latin America will need a briefcase full of official papers (see itemized list). The advance paperwork is formidable and could take almost as much time as the trip, unless you avail yourself of the services of a pilot's organization, such as AOPA (Aircraft Owners and Pilots Association). Their "Latin American Flight Guide" is excellent, and the first thing you should read on this subject. They can obtain virtually all necessary documents for you except a passport and appropriate visas, which you must and should get yourself. Regardless of regulations, and what Karl Malden tells you, do not leave the U.S.A. without a passport.

Also, do not start your pilgrimage without first consulting FAA's International Flight Information Manual, and the current amendments. This annual publication will not solve all of your problems, but it gives specific and detailed information for getting into and out of foreign countries legally and safely. It is for sale for $9.00 (annual domestic subscription) from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

Lack of required documents for flight in Latin America will not cause you any direct safety hazards, but it will certainly set up delays and may foul up your timetable to the point where you try to take some ill-advised shortcuts once you finally get airborne again. A good precaution is to crank in a 100 pecent reserve to the time you allot for the trip—and to the money you think you will need. *Patience is the key.*

●**Navigation.** If nothing else, a trip like this will cause you to love FAA and revere its network of VORs, flight service stations and en route radar coverage, which guides you from one end of the country to the other with the same dependable consistency. In Latin America the VORs begin to thin out as soon as you cross the Rio Grande, and once you are south of Mexico they are virtually non-existent, except at major cities. There are no friendly, free, flight service stations along the way. En route Centers may be contacted on 126.9 MHz, assuming you are high enough to have a line of sight bearing on the station. Radar coverage for civilian use is limited to major airports. The common en route NAVAID in Latin America for VFR flight is a nondirectional beacon, which operates in the low to medium frequency range (less than 50 MHz). For small aircraft operating VFR, an ADF receiver, which functions in this frequency range, is a must.

Some experience in navigating by means of NDBs prior to flying south is also desirable. NDBs are cheaper to install and maintain than VORs, and usually have a much better range, but they do not give you a direct bearing, they are difficult to track outbound, and they are easily distorted by thunderstorms and other sources of electrical disturbance.

For VFR flight you will need either the World Aeronautical Charts (WACs), or the Operational Navigational Charts (ONCs) which are progressively replacing them. WACs and ONCs cover twice the area of sectionals and consequently show less detail. This means fewer charts per flight, but calls for more careful scrutiny beforehand and places greater demands on your pilotage skills. Getting lost in a strange country can be an experience you will never forget, and never wish to repeat.

For IFR flying and for NAVAID frequencies (not given on WACs or ONCs), use the DOD Flight Information Publication (FLIP) charts, high and low altitude, and the en route supplement for the Caribbean and South America. These charts will also help the VFR pilot determine the type of NAVAIDs available.

●**Terrain.** In the United States a pilot can easily fly for 1,000 miles without encountering anything like a respectable mountain, but that is not true in Latin America. From the Rio Grande south to the Panama Canal, and all along the western coast of South America as far as Tierra Del Fuego, much of the terrain appears to be a continuing extension of north/south oriented mountain ranges. Elevations over 12,000 feet are not uncommon, and in Columbia and Ecuador the ONC states that maximum elevations are ". . . believed not to exceed 21,000 feet."

When you take into consideration that much of this land is close to the equator and you start estimating the density altitude of some of the inland routes and airports, you understand why aircraft service ceiling is an important factor here and why twin-engine or turbo-charged aircraft are preferred. Many of the fabled cities of Central and South America are situated within the protective walls of a mountain basin. Most of the year they are going to be beyond the reach of aircraft with ceilings under 18,000 feet, given the need for making allowances for safe clearance margins. Note: The WACs and ONCs give elevation in feet, but all of Latin America (including the controller who gives you your altimeter setting) uses the metric system, so have a conversion table handy and remember to use it.

●**Weather.** A glance at a map will show you that the ratio of water to land mass is much greater in Central America than in the United States. It follows naturally enough that there is more moisture in the air, and more days when the VFR pilot will have to wait out the weather on the ground than he is used to doing. In some of the banana belt countries there are periods when a daily rainshower or two is customary. The best flying weather (so-called "dry season") is found in the *winter* in Central America and in the summer in South America. (Since the seasons are reversed below the equator, the favorable season is essentially the same four calendar months—December through March).

Remember, wind direction around highs and lows will be reversed after you cross the equator. Anticipate storm movement accordingly.

Normally if you are flying in the lower elevations along the coast you can count on the best weather of the day occurring before noon. In the mountains, however, the passes may become plugged with clouds for days on end. Again, patience is the key. Wait it out. Write some postcards. Clean out the airplane. The air traffic control resources for assisting pilots trapped by weather simply do not compare with those in the United States. Even if you survive a crash landing, it could be many days before anyone finds you—or even misses you.

Weather briefing facilities, likewise, are limited to major airports, and even here the fore-

Publications for Travelers Going Abroad.

1. **"International Flight Information Manual."** Published annually every September with three subsequent updates. Price, $9.00 for Superintendent of Documents, GPO, Washington, DC 20402.
2. **"International Notams."** Published biweekly, same address, price $38.00. Flight Service Stations near border crossings can be contacted for last minute International Notams; or you may contact the International Notam Office in FAA's Washington, headquarters. Phone: (202) 426-3390.
3. **Navigational charts.** Consult the "Catalog of Aeronautical Charts and Related Publications," available free from National Ocean Survey (NOS), Distribution Center (C–44), 650 Lafayette Ave., Riverdale, MD 20840. This includes names of local chart sellers.
4. **AOPA publications.** Free to members, sold to others. Especially helpful for southbound travelers are: "Mexico," $7.50; "Central America," $3.50; "Latin America Flight Guide," $7.50. Write to AOPA, Flight Operations Dept., 7315 Wisconsin Ave., NW, Washington, DC 20014.

Excerpts from AOPA's International Checklist.

Personal Documents
- a. Passport
- b. Visa
- c. Tourist card
- d. Other proof of citizenship (i.e., birth certificate)
- e. Airman certificate
- f. Medical certificate
- g. Radio-telephone operator's permit
- h. International certificates of vaccination

Aircraft Documents
- a. Logbooks (aircraft and engine)
- b. Registration certificate (type weight in kilos on front)
- c. Airworthiness certificate
- d. Flight manual
- e. Flight authorization letter (if you are not owner of aircraft)
- f. Landing and overflight permits
  - 1. Military bases
  - 2. Foreign countries
- g. Insurance policy (including foreign liability)
- h. Maintenance data
- i. Aircraft radio station license
- j. Contract for ground services from international carriers

Inspection Services
- a. Customs information for all countries on itinerary
- b. General declaration forms
- c. Passenger manifest
- d. Aerosol bomb (cabins must be sprayed with insecticides before landing, in some circumstances)

Operational
- a. FAA International Flight Information Manual
- b. WAC, ONC, FLIP Charts.
- c. VOR, ELT, HF/ADF radios

Maintenance
- a. Fuel—international credit cards
- b. Spare parts for engines and airframe
- c. Manufacturer's list of repair stations abroad for airframe, engines, avionics equipment, etc.
- d. Methanol SpG kit

Survival Gear
- a. First Aid kit
- b. Survival kit
- c. Flotation gear

Miscellaneous
- a. ICAO international flight plan forms
- b. Commissary supplies (include bottled water)
- c. Duplicate keys for aircraft, galley, bar, luggage, etc.
- d. Fuel strainer
- e. Personal
  - 1. Adaptors for electric appliances
  - 2. Credit cards
  - 3. International driver's license
  - 4. Airline credit cards
  - 5. Letter of credit from bank
  - 6. Six or more passport size photos
  - 7. Travelers' checks
  - 8. Ground transportation information
  - 9. Supply U.S. cash—small denominations
  - 10. World-wide currency converter

casts or observations (which carry a service charge) may not be up to date—some may be several days old, in fact. Many pilots prefer to seek weather information from U.S. flag carrier offices or from fellow pilots in transit. There is no source of en route weather except for the air traffic centers, which are often difficult to contact. What it boils down to is that the pilot must keep a sharp eye about him aloft at all times, relying heavily on his own judgment. He should also ground himself at the first indication of bad weather. Single-pilot or single-engine IFR is not advised at any time. Be patient. Wait it out. Remember *mañana*.

•**Fuel.** There is plenty of it around down there, but it may not always be available where you are and when you want it. (In some areas fuel supplies are controlled in order to combat drug flying.) Never land with dry tanks when you can avoid it. When refueling, always monitor the operation. Make certain a suitable filter is in use and provide your own teflon strainer net when in doubt. Top your tanks always, regardless of the price. Tiptanks could make your trip a lot easier. Otherwise, keep about twice the reserve you customarily do. You might also want to carry a few cans of correct oil for your engine.

•**Language.** A smattering of high school Spanish may help you in a restaurant or shop, but not with air-to-ground radio work. Unless you are virtually bi-lingual, stick to English whenever you can in radio transmissions. When you need precise guidance the last thing you want is rapid-fire "controllerese" in a strange dialect. Keep trying in English until they find someone who can talk to you or practice your Spanish beforehand.

Incidentally, since most U.S. pilots headed for Central America and points south will have to overfly or land in Mexico, (which is technically in North America) you will want to be updated on the latest requirements for that country as well. A recently issued pamphlet on flights to Mexico, including the latest requirements for local liability insurance, is available form FAA flight service stations and GADOs in the southwestern states.

There are also some regulatory differences governing flight operations in Central America which differ significantly from U.S. rules:

- A multi-engine aircraft is required for IFR flights.
- No single-engine night flights are permitted.
- A pilot must be IFR rated to night file in a multi-engine aircraft.
- Whether IFR or VFR, a flight plan must be filed, except between uncontrolled airports.

For the rest, the flight and traffic rules are generally the same.

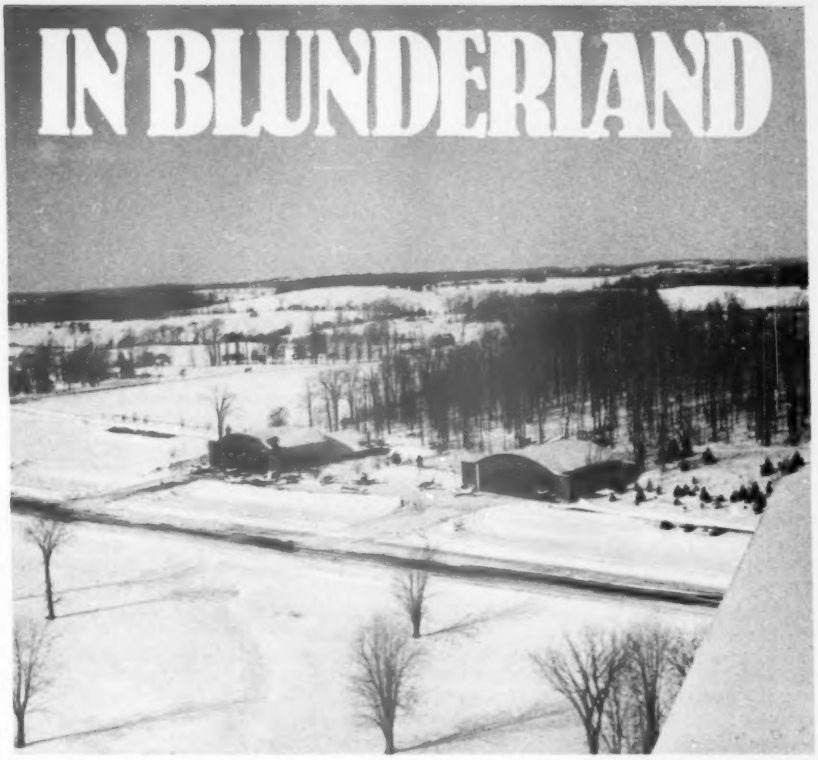
The idea of traveling by private plane as a tourist in Central or South America may have taken on a whole new appearance at this point, but these cautions are not meant to be discouraging. The trip *can* be made safely and interestingly by any proficient pilot who is willing to make the necessary preparations and has the patience to wait out any difficulties or delays he encounters.

You don't have to be a saint, but it helps. ■

Fueling at small airports in Latin America is usually done directly from cans or fuel drums that may be contaminated. Pilots should be prepared to supply filters and supervise the operation.

ALICE IN BLUNDERLAND

The Continuing Saga of a Determined Young Woman at Bay in the Flight Training Environment



Deliverance Day: On my own at last. Since making my first solo I have felt as if I were practically reborn, a winged creature scarcely related to poor earthbound mortals. I've shed my image as "that girl student"—at least it seems so when my instructor, Tim, invites me to hangar flying sessions with instructors and other pilots. That really makes me feel like one of the guys. After two more supervised solos Tim signs me off to leave the airport for the practice area. He's such a great guy, but how glorious to be flying alone without a six-foot four-inch sober-faced critic alongside. Forgive me, Tim.

8-20-80. Finally I get to go to another airport. This is a dual crosscountry from our little Dogpatch Airport at the back door of Washington National, about 65 nautical miles to Rappahannock Municipal, across the lower Potomac. I planned and replanned the flight until I was sure I could do it blindfolded, and I was bubbling with excitement when we took off. Beautiful clear weather, too. Tim managed to burst the first bubble when we got to checkpoint number 1, an intersection of two country roads. "How do you know, young lady," he says, "this is your intersection? Could be a dozen intersections like this around here."

I argued it's the right distance and direction and the right kind of roads, but he shakes his head. "Not good enough. You need a corroborating landmark for positive identification—racetrack, pond, tower, something. Miss your first checkpoint and you may never find any of the others."

Yes, sir. Eagerly I point out to him the dragstrip adjoining my next intersection. Tim does not look impressed. "Little dirt playpen like that could spring up anywhere overnight." he says. "Like to see something more permanent."

Like a cemetery, maybe? Or a pyramid? But I keep these little thoughts to myself. We fly on. My winged image is fading as I prepare to fend off the next barb.

We are to cross the Potomac at Colton, a tiny roads-end village at the end of the peninsula. No way I could miss it, but Tim is scowling one of his deacon scowls. Every spit of land along the river here has some kind of road leading out to a couple of buildings on the shore, he opines. How do I know, *for sure*, this is Colton?

For sure. Well, I don't.

"I do," he says. "See the monument—that big white cross on the island out there off shore?"

I see it.

"Obvious checkpoint. That's where they bless the fishing fleet every year, when the season starts. Didn't you know about that?"

I knew. I know also he was going to ask me why I didn't use it to confirm Colton, so after some fast thinking I explained that the monument had too many unhappy memories for me. My father was blessed there just before he went on his last voyage, and was strangled by a giant squid. A stare of disbelief, but we fly on in silence over the river.

About halfway across Tim pulled the throttle and announced an engine failure. *Where am I going to put it down?*

I pointed out a green field straight ahead on the opposite shore.

"How far?"

I guessed about three miles. He measured it on the chart and again put on his deacon scowl.

"Windspeed and direction?"

"Well, at our airport it was—"

"Never mind that, we're 50 miles away. Did you check the winds aloft for the lower Potomac and Chesapeake Bay?"

Nope. (Pause) *I didn't think it was necessary.*

"You must be a great swimmer."

"Nope. I don't swim."

"Not at all?"

"Not a stroke." For some reason Tim found it hard to swallow this piece of information and kept chewing on it and tossing it up like a dog with an old bone. He couldn't understand how anyone in these times wouldn't learn how to swim. *Was there some kind of problem?* I explained to him, sadly, that my skin was perforated with hundreds of tiny holes, which let water in.

That got him quickly back to the subject of winds, and he gave me a short lesson in estimating direction and speed from Natural and Unnatural Phenomena. Then he got out his calculator and started putting it all together. *Now let's see, the glide ratio for this airplane is . . . ?*

"—is something you forgot to teach me."

"It's in the books. About six to one, for this ship." He showed me his figures and asked me if we were going to glide to shore. As far as I could tell, while watching the water nervously

with one eye, we were going to get wet. Tim nodded and pushed in the power.

"Being such a great non-swimmer, I suppose you made sure we had flotation gear on board?"

"Not required."

"Neither is breathing, for that matter, but it's well recommended."

I reached behind and handed him a vest. I told him he could stick his head in it right now, but I was planning to go down with the ship. That loosened things up for a while, and none too soon, as the nice green field I had selected turned out to be a water treatment plant.

Rappahannock came into view right on schedule and I called in on the UNICOM for local information. I called again, and again, and again—no answer. I flew over the airfield and spotted what was left of the windsock, not more than a couple square inches. The runway was supposed to be a good 3,600 feet, but I was nervous about landing downwind, so I looked about for Natural and Unnatural Phenomena and had to settle for some underwear on a clothesline. I put out a couple of broadcasts in the blind about my intentions and set the airplane down. No problem.

Tim introduced me to the airport manager, who was sitting with some cronies in the coffee shop, his feet up on the counter. He gave me a big smile and said, in a good old boy voice I loathed, "Was that you a-hollerin' on the radio, honey? Seemed like you was landing and taking off all at once."

"Something wrong with your transmitter?"

"Just happened to be out of reach." (It was about ten feet away.) He gave me a big wink. "Shoot, honey, if I'da knowed you was in trouble I'da jumped up like fat off a hot pan."

"You are most kind."

Tim eased me over to a telephone and suggested I file for the return trip. I heard him telling the others something terribly humorous about his not wanting female pilots to file round-robin because they might wander off or fall in love and forget to cancel. Big laugh, slapping of thighs. "I'm available," a couple of them bawl out. I march out the door.

We were at least ten miles out of there before I bothered to turn the radio on, and another ten miles before I could settle down and fly the airplane without muttering under my breath. Tim made no comment. He just sat there looking out the window and whistling occasionally. I had no trouble finding all of my checkpoints on the way back to our home base and really enjoyed hearing that friendly familiar voice on the UNICOM. No wisecracks, no jive, just a straight-to-the point report and a cordial welcome. I made one of my better landings and taxied smartly up to the ramp, shut down the airplane and turned to Tim for the usual post-flight commentary. Not a word. He just smiled, got out of the airplane and ambled back to the flight office.

I waylaid him later at his desk where he was going over his flight log. "Well," I said, "how did I do?"

He studied his notes. "We got there all right. And we got back."

Had I made any mistakes?

"You notice anything?" he asked me.

I thought for a moment, shrugged and shook my head. From the smile on his face I knew that wasn't the right answer. He crossed his long legs on the desk, leaned back and studied me.

"You're a smart girl, and educated, and you read the books and study the charts and you fly real well and you're real eager—maybe that's the problem. You're so darn eager to be a Perfect Pilot that you can't imagine yourself making mistakes. But from here on out, most of what you have to learn to become a really fine pilot is going to come from the mistakes you make, and acknowledge, and correct—not from the books or instructors like me. I'm sitting here trying to figure out if you really did learn anything from the flight. If you can't think of any mistakes I don't see how you learned a thing."

Okay, I told him. I didn't have a positive identification for my first check point. I suppose I could have been mistaken about Colton too, though I wasn't, was I? And I didn't get off course ever.

"Not this time. Another time you might, unless you improve your technique. There's always some unknowns in flying, so the more things you are sure about the better off you are. Now I know you don't like me checking you off all the time, so you've got to start doing it for yourself."

Okay. I confessed to not having measured the river crossing or learned the glide ratio of the airplane or checked the winds aloft en route. I even admitted to having ignored the monument as a crossing point. Another time I would correct all those goofs. *Okay. Are we ready to talk about the next flight?*

"Not quite. How about Operation Deep Freeze?"

I didn't know what he was talking about.

"The catty little sulk at the airport, and the radio silence when we left. How much did that do for the safety of our flight?"

I conceded it didn't help, but I couldn't see it did any harm either, since that amorous slug in the coffee shop wasn't going to bother transmitting on the UNICOM.

"You don't know. I think he would have called us, if there was something we needed to know. I've known him a while. He's not a dummy."

He could have fooled me. Why he didn't answer when I was setting up to land?

"Runway was clear, wind was calm, visibility unlimited, coffee was hot—what did he have to tell you? Not to be nervous because its your first landing away from home? How did he know that? You want special treatment, you have to ask for it."

I didn't want special treatment, I told Tim, my teeth still gritting at the memory, *just a little common courtesy.*

"Well, may be all he wanted was a little common friendliness. Seems to me the two of you could have got together all right. He doesn't owe you anything, you know. You didn't even buy a cup of coffee there."

I told him I didn't see the poorbox or I would have chipped in.

"Not funny. These people aren't paid a fancy salary to keep you flying right. They're busy trying to earn a living or do a job, and minding the UNICOM is something they do in their spare time and in their own way. There are hundreds, maybe thousands of people like that in little airports all over the country. Short-hoppers like you couldn't get along without them. You're going to be living with them for a while, and learning from them, so you better get used to the idea."

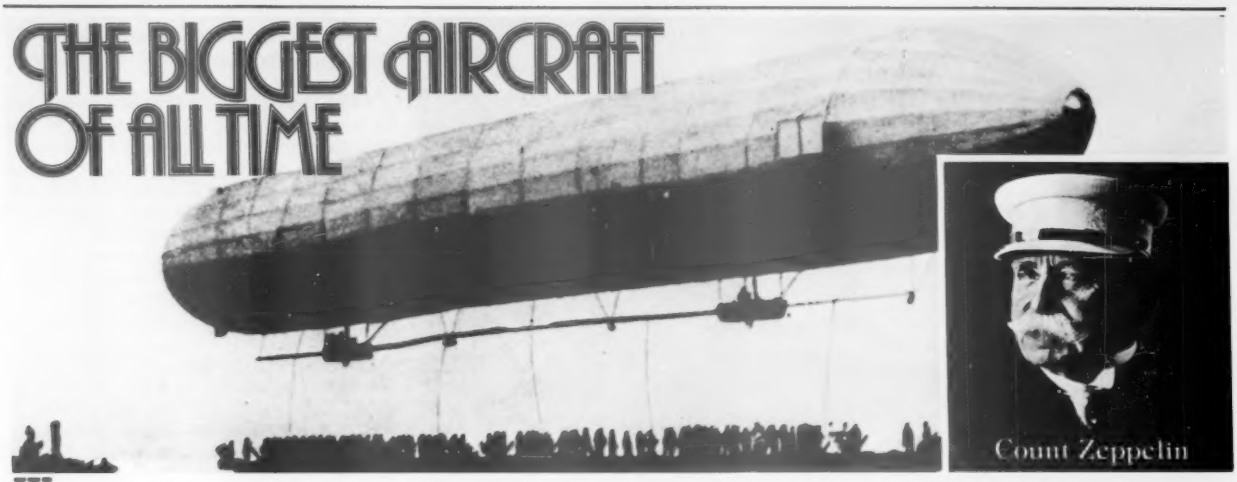
Tim stood up and shuffled through his flight log. "I don't suppose," he said, "there's any way you'd go back to Rappahannock solo?"

In a lead casket, was my reaction. But I knew he had me stonewalled, so I lowered my eyelids meekly and said I'd go. *Yes sir, I'd love to go. That fat friend of yours there will try his humor on me, and I will puke on him, but I will go.*

9–24–80. First solo cross country. *Sixty-five miles to Rappahannock Municipal and return. Departed 9:21 local, continued en route via Colton. Observed loss of power while crossing Potomac River. Determined cause was throttle friction lock not tightened down. Remainder of flight uneventful. UNICOM at Rappahannock reported potholes near threshold of Runway 07, recommended landing 25. Complied. No problems. Remained on ground 20 minutes. Airport manager signed logbook. Departed Rappahannock 10:34 local. Returned by way of Brooke VOR, uneventful. Landed 11:35.*

Remarks: Manager said he did not remember me. ■

THE BIGGEST AIRCRAFT OF ALL TIME



Count Zeppelin

What does a man do when after 32 years of military service he is suddenly retired and told to go fly a balloon? One man did just that, and eventually produced an airship almost as long as three football fields.

His name was Count Ferdinand Adolph August Heinrich von Zeppelin. He was born in Wurttemberg on July 8, 1838, descending from a long line of German aristocrats and military adventurers.

Young Ferdinand received the upbringing typical of central European nobility, learning the management of the family estate and attending Wurttemberg Military Academy and the University of Tubingen, where he studied political science, chemistry, and engineering. Then he dutifully followed family tradition and joined the Army.

In 1863 Europe was experiencing an unusual occurrence—peace. The nearest war of any consequence was the War Between the States, so Count Ferdinand got himself dispatched to Washington, DC as an official observer.

The King of Wurttemberg provided him with letters of introduction, leading to a chat with President Lincoln, who gave the Count a military pass so that he could move freely among the Union troops. Count Ferdinand also secretly carried a letter to General Lee, just in case of capture by the Confederates. He almost had to use it at Ashby's Gap in the Shenandoah Valley, when he became involved in a cavalry skirmish with J.E.B. Stuart's troops. All that saved him was the speed of his horse.

During the summer of 1863, the restless Ferdinand decided to see more of the United States before he returned home. With two Russian fur traders and a pair of half-breed Indian guides, he set off on a wild west trek which ended in St. Paul, Minn. Here Ferdinand met Professor John Steiner, a former balloonist with the Union Army.

Steiner had designed an odd cigar-shaped balloon with a rudder to give it more directional control. Ferdinand made on ascent, and was immediately captivated by a passion for flight. Although he was obliged to return to Wurttemberg and resume his army career, he maintained an active interest in ballooning for the next 25 years. He resigned his commission in 1891 and immediately planned the constructionof *Luftshiff* (Airship) *Zeppelin* No. 1 (LZ–1).

Airships, or steerable, power-driven balloons, had already been flown in France but were considered little more than toys for the wealthy, since they were structurally fragile and carried a very small load.

The practical German proposed to use the new aluminum alloys in a strong metal framework that would support unlimited containerized gas envelopes. After launching three early models of his *Luftshiff* with varying degrees of success, over a ten year period, Count Zeppelin startled the world in 1901 with his LZ–4, an enormous 446 foot "dirigible."

Sustained by over a half million cubic feet of hydrogen gas, LZ–4 had a useful load of 10,150 lbs. Two 210 hp Daimler engines achieved an airspeed of 30 mph. Steering fins were attached fore and aft, controlled by the crew in the gondola amidships. Significantly, a small platform supported a machinegun.

To pay for the construction of this huge ship, Count Zeppelin spent nearly his entire fortune, mortaged his wife's estates in Latvia, dismissed his servants, borrowed from all of his friends and operated two national lotteries. But the LZ–4's very first flight, one June 20, 1908, was such an astonishing success that the future of his Zeppelin Company was assured. Even though the airship caught fire and burned three months later, the Count quickly received voluntary donations of over $1.5 million to continue his work, which appeared to offer Germany a striking military advantage.

Before World War I was over the Zeppelin Company had built more than 100 huge airships, some over 800 feet long and capable of supporting 100,000 lb. loads. As night bombers they terrorized the Allied cities, hunting in large packs at altitudes above the service ceiling of early pursuit planes, raining unparalleled destruction on civilian populations without warning.

In the last year of the war, higher performance Allied airplanes were finally able to outclimb the Zeppelins, and the slow speeds and huge surfaces of the latter made them an east target for incendiary bullets. Giant airship after airship was sent down in flames. Bad weather, mechanical problems and sabotage also took their toll. Some 82 Zeppelins were lost in four years of warfare.

Count Zeppelin died in 1917, but his dream of "floating pleasure palaces" was reborn a dozen years later, when Germany introduced world-wide air service with civilian airships. The "Super Zeppelin" was 806 feet long and 135 feet in diameter, buoyed with seven million cu. ft. of hydrogen gas, had a useful load of nearly ¼ million lbs., and an airspeed of 80 mph.

Furthermore, the *Hindenberg* in 1937 offered a luxury and spaciousness never equaled in air travel. Fifty passengers were accommodated in twin sleeping cabins with hot and cold running water. An "upper deck" observation room measured 49 × 92 feet. There was also a formal dining room, a lounge, and writing and smoking rooms.

In addition to round-the-world service the Zeppelin took passengers on leisurely pleasure cruises, where the wonders of man and nature—the Swiss Alps, the Greek temples, the shrines of Jerusalem, the pyramids of Egypt, etc—could be viewed while floating gently through the sky in apparent perfect safety.

That illusion was shattered when the *Hindenberg* caught fire and crashed, killing 35 persons at Lakehurst, N.J. on May 5, 1937. Although a sister ship was already under construction, it was dismantled in 1940, as public confidence shifted to the new generation of fast transcontinental airplanes. The American military dirigible program was abandoned shortly after the 785 foot *Macon* broke up in turbulence, in 1935.

Since World War II many proposals have been made to resurrect international dirigible flights, on the grounds of comfort and economy. But most aviation experts agree that the "elongated balloons" will never be as safe or maneuverable as airplanes, and the only enduring vestige of Count Zeppelin's grandiose dream we will see in the sky is the Goodyear blimp. ■

UPPER CRUST. Frozen snow adhering to wing or tail surfaces is a frequent cause of winter accidents and unhappy holidays. Propwash on the takeoff roll will not always blow all snow off, and what is left behind can disrupt airflow over the lifting surfaces or jam control cables for the ailerons or elevator. Make certain *all* snow is removed from the airplane before takeoff for a happy holiday.

Boy's Flying Camp Operator Given National Award

The founder of a live-in flight school for teenagers, and a maintenance supervisor who is not afraid of getting his hands dirty were the most recent recipients of the annual Flight Instructor and Maintenance Technician of the Year Awards.

In 1968 Lee G. Barnes, then a high school music teacher with a background in Navy flying, started taking scholastically unmotivated youths up flying on weekends. Flying proved such a healthy stimulation that Sky-Life was born—an airport "camp" for teenagers interested in the challenge of aviation.

Over the past 13 years with Barnes' help, some 2,000 youths have learned about flying by doing it—with only one minor mishap.

Having to remove the propeller in order to perform engine maintenance on the Grumman American *Tiger* seemed a laborious process to Michael E. Brown, 34, of Prescott, Az.—and a possible cause of frequent propeller stress failures from over-torquing. So the maintenance supervisor rolled up his sleeves and worked out a cowling arrangement that provided immediate access to the powerplant, resulting in safer maintenance on the *Tiger*.

Barnes and Brown received a three-day holiday in Washington, DC in October plus numerous honors and cash awards totaling several thousand dollars at a ceremony made possible by aviation manufacturers and associations.

Time in Service Limitations for Engines, Propellers

Revisions to airworthiness Federal Aviation Regulations will improve maintenance safety standards for future aircraft by requiring manufacturers to provide more explicit "Instructions for Continued Airworthiness" for aircraft engines and propellers. Manuals will contain specific details on proper maintenance procedures and an Airworthiness Limitations section that sets forth mandatory replacement times, inspection intervals, and recommended overhaul times.

The revisions govern aircraft built under new production certificates issued after October 14, 1980.

In a related action affecting general aviation, FAR Part 91 was amended to require that ". . . no person may operate an aircraft for which a manufacturer's maintenance manual or Instructions for Continued Airworthiness has been issued that contains an Airworthiness Limitations section unless the mandatory replacement times, inspection intervals and related procedures . . . have been complied with."

Furthermore, the aircraft owner or operator must make certain that maintenance personnel not only record work performed in maintenance logs but also the time in service of each engine and propeller, as well as the airframe.

Details of the rule changes were published in the September 11, 1980 *Federal Register*, Vol. 45, No. 178, and are available for $1.00 from the Superintendent of Documents, Government Printing Office, Washington, DC, 20402.

Certificate Format Changed

The new look in FAA pilot certificates is a smaller, credit card size form in blue, gold or white, with the present distinguishing seals eliminated.

A blue certificate will be issued to either private or commercial pilot certificate holders who have received some instrument training. A gold certificate will be issued to flight instructors who have trained at least 10 applicants for a certificate or rating, of whom 80% have passed the flight test on the first attempt. White certificates will be issued to all other pilots.

There is no plan to reissue existing certificates in the new colors.

Operating and Airworthiness Standards for Large Airplanes

A higher safety standard has been established for large airplanes with the enactment of new FAR Part 125, governing general aviation airplanes that carry 20 or more passengers or have a payload of 6,000 pounds or more. U.S. registered airplanes not used as air carriers or in agricultural operations are affected.

The new rule will require *chartered* airplanes of this configuration to be maintained and operated under standards approaching those of common air carriers, beginning February 1, 1981.

Air travel clubs who use similar airplanes may continue to operate under Part 123 until January 1, 1983, when they too must conform to Part 125. Interstate commercial operators will also have to comply with Part 125 on the same date.

Part 125 requires operators to provide effective safety management and to set duty times for flight crews; maintain flight operations and maintenance manuals; keep and follow minimum equipment lists for each airplane; and install airborne weather radar as required equipment in each airplane. The rule, which is designed to close certain legal loopholes in the existing regulations, was enacted after 12 months of public comment and discussion.

Latest Airmen Publications

Aeronautics

The 1971 "Pilot's Handbook of Aeronautical Knowledge," FAA's basic training and reference manual for general aviation pilots, has been replaced with an expanded and modernized edition. The new handbook reflects many changes in regulations, flight procedures, and aircraft which have taken place in the last ten years.

Notably the chapter on aircraft performance has been enlarged to include detailed discussion of data provided in Aircraft Flight Manuals and operating handbooks. Complete sections on weather and navigation are included.

The 1980 handbook is available for $11.00 from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. Ask for FAA Advisory Circular 61.23B.

Flight Training

An updated "List of Certificated Pilot Schools" is available free from DOT Publications Section, M443.1, Washington, DC, 20590. The state-by-state listing gives the school's complete address and type of training given. Write for Advisory Circular 140–2N

Exam-O-Grams

The 1980 Exam-o-grams are now available at a cost of $13.00 for the combined VFR/IFR set. Exam-o-grams are a compilation, with illustrations, of answers to questions which have caused pilot applicants the most difficulty on written examinations. The book is updated to accommodate recent ... changes. Send a check to Superintendent of Documents, Government Printing Office, Washington, DC, 20402.

• Dual PIC

Please help me clarify a dispute. I would like to log my instrument instruction time as pilot in command time. FAR 61.51 tells me to go ahead, but my flight instructor tells me I cannot. Who is right?

M. Patterson
Baltimore, MD

You are. FAR 61.51(c)(2)(i) and (iii) permits the pilot (private or higher) receiving the instruction and the flight instructor to log pilot-in-command time for the period of instruction.

• Non-Chauvinist Male CFI

I would like to say I think your magazine is excellent, and I thought the article "Alice in Neanderthal Land" was more than excellent. I am a female student pilot, and the descriptions about Alice's run-ins with different schools and instructors are almost a carbon copy of mine. I think that it is sad that women are accepted into aviation only as a novelty. I am just as dedicated and serious about aviation and the entire concept of learning to fly as any male student, perhaps even more so. My instructor is one such as Alice talked about. He takes quite a bit of harrassment about my being female. Nevertheless, he is very patient and extremely thorough. His never-ending encouragement and support is overwhelming.

So let's hear it for the unbiased instructors; there just aren't enough of you!

Lynda Guenther
Dayton, OH

• Spatial Disorientation at Sea

As a resident of Hawaii, I read your July/August 1980 article on gear-down ditchings with interest. Before reading of Toby Alvis' successful ditching in a Cessna 185, I adhered to the conventional belief that fixed gear would "trip" the plane on landing, resulting in a flip, and, if fortunate, an upside down escape from a flooding cockpit. Although it raises the eyebrows of my macho flying compatriots, I invariably wear and insist that my passengers were life preservers on over-water, single-engine flights.

I'd like to point out another factor in Toby's survival. He stated that he ". . . lined up with the swells and aimed the nose at a half-way point between the life boat and the freighter." These floating objects undoubtedly allowed him to overcome the severe spatial disorientation that is characteristic of open sea landings. Without the presence of objects of recognizable scale, it is difficult, if not impossible, to accurately judge one's height above the water. During my years as an Air Force recovery pilot, we dropped smoke cannisters and used the foam of breaking waves to help overcome this problem.

Byron M. Fox
Captain Cook, Hi.

In the absence of any visual aids like smoke or ships, the Airman's Information Manual has the following recommendation in Paragraph 464 F(1): "If no power is available [to drag the surface] a greater than normal approach speed should be used down to the flareout. This speed margin will allow the glide to be broken early and more gradually, thereby giving the pilot time to feel for the surface—decreasing the possibility of stalling high or flying into the water."

• New Effective Date for Seatbelts

In the "Briefs" section of your March/April 1980 issue you state that metal-to-metal latching seatbelts are required as of December 4, 1980 on all standard category certificated U.S. aircraft. I have just read from another source that the date is actually December 4, 1981. Who is correct?

William F. Kardas
Glassboro, NJ

Shortly after the December 1980 date appeared in the March/April "Briefs" the effective date was extended to December 1981.

• Part 1351, Where Are You?

The answer to "Discouraged Pilot" in the "Forum" for September/October 1980 mentions FAR Part 1351.105. I looked everywhere, and I couldn't find a Part 1351 anywhere. What is it?

Leo Gerard
Lancaster, Pa.

Part 1351 was enacted when one too many "ones" was typeset. The correct reading is Part 135.105.

• Weather and Alternate Airports

What consideration should I give to weather forecasts which contain such words as "chance of," "briefly," and "occasionally" when filing an IFR destination or alternate?

Gary L. Larsen
Honolulu, HI

"Occasionally" is used in aviation weather forecasts to denote frequent changes in the weather picture for short periods of time, e.g., "occasional light showers." Forecasts are used for deciding the alternate to be listed in an instrument flight plan or if the alternate selected is suitable. An alternate with possibilities of below minimums weather, as indicated by words such as "chance of," "briefly," and "occasionally" in the forecast, would not be an appropriate alternate.

• Mini Survival Kit

I appreciated the fine article in the November/December 1979, issue about post-crash survival. Now that winter is upon us again, my question is "Where can you purchase the materials in the mini-survival kit?"

Carl H. Garrison
Coffeyville, Ks.

The materials for the mini-survival kit are pictured in the article on page 10 and consist of objects usually found around the house. If not, most supermarkets or drug stores or both will be able to supply the materials.

• Crash of the Month?

As always, I was delighted to see *General Aviation News* (or "Crash of the Month" as I sometimes call it) awaiting me in the pile of the day's mail. As usual, it was filled with good articles, written in language as simple as a complex subject will permit.

This time, however, it had something a cut above normal—the excellent pictures of Toby Alvis' ditching. I searched in vain for the photo credits. Who do we thank for this unique bit of on-the-spot photography?

Also, while I have your attention, I wish to commend you for your articles on women in aviation, particularly Blanche Noyes. "Alice in Neanderthal Land" and "Angels of Mercy" were the most recent examples of your positive attitude.

Richard S. Russell
Madison, Wi.

It's nice to know we are appreciated. The photos in the ditching article were taken by a crewmember of the rescue ship. Because we obtained them through a third party, his name was never learned, but whoever he is, it was a fine job.

FAA GENERAL AVIATION NEWS welcomes comments from our readers. No anonymous letters will be used, but names will be withheld on request. Address: FAA GENERAL AVIATION NEWS, AFO-807, Washington, D.C. 20591.

• Terrain Flying Handbook

In your reply to the query about publishing the terrain flying articles as a single handbook, you stated the FAA was not in a position to publish such a booklet. Why not reprint "Terrain Flying," which was originally published in 1960? This little book contained chapters on all sections of the U.S. and tips on the hazards to flying in each.

As the geological clock ticks, 20 years is a mere moment. How about it?

William D. Ruttan
Hollywood, CA

The Advisory Circular, "Terrain Flying," was discontinued several years ago for lack of public demand. It may be revised and reissued.

• A Gyro-Stabilized What?

The way in which you presented the two sketches in the "Pilotage" article (September/October 1979) suggests that the crosscountry traveller who engaged in aerobatics while consulting your articles would welcome some help in keeping his charts oriented. I propose development of a gyro-stabilized chart table mounted vertically on the instrument panel to keep terrain and chart coordinated for upsidedown flying. This should help reduce the number of pilots that get lost in marginal VFR.

Heiner M. Seidel
Germany

Let us know how it turns out.

• Mis-used Frequency

If the assigned frequencies for uncontrolled airports are 122.7, 122.8, and 123.0, why do some airports with a ground station use 122.9? In particular, one airport I am familiar with is listed on the section chart for 122.8 but most pilots there use 122.9 and make a mess of air-to-air communications.

Also, what frquency should be used for "chase" vehicles for sailplanes or balloons?

David M. Sgriccia
Walled Lake, MI

Possibly pilots at that airport use 122.9 because 122.8 is so crowded. Using 122.9 for air-to-ground communications is in violation of FCC regulations and could cost the airport their FCC license. The sole legal use of 122.9 is for air-to-air communication:

The same frequencies apply to sailplanes and balloons, which are aircraft, if operations are conducted at uncontrolled airports. Air-to-ground frequencies are for communications with a ground station or vehicle, and air-to-air frequency for communication between aircraft.

INSTRUMENT CORNER

• Visibility and Contact Approach

Can a controller accept the pilot's assessment of the ground visibility when granting approval for a contact approach at airports without a weather reporting facility?

Thomas E. Miller
Ballston Spa, NY

Negative. Unless an accredited weather observer has reported the ground visibility as one mile, the controller cannot issue the clearance. Since the pilot is not usually an accredited weather observer, his estimate of ground visibility would not be enough to satisfy the requirements.

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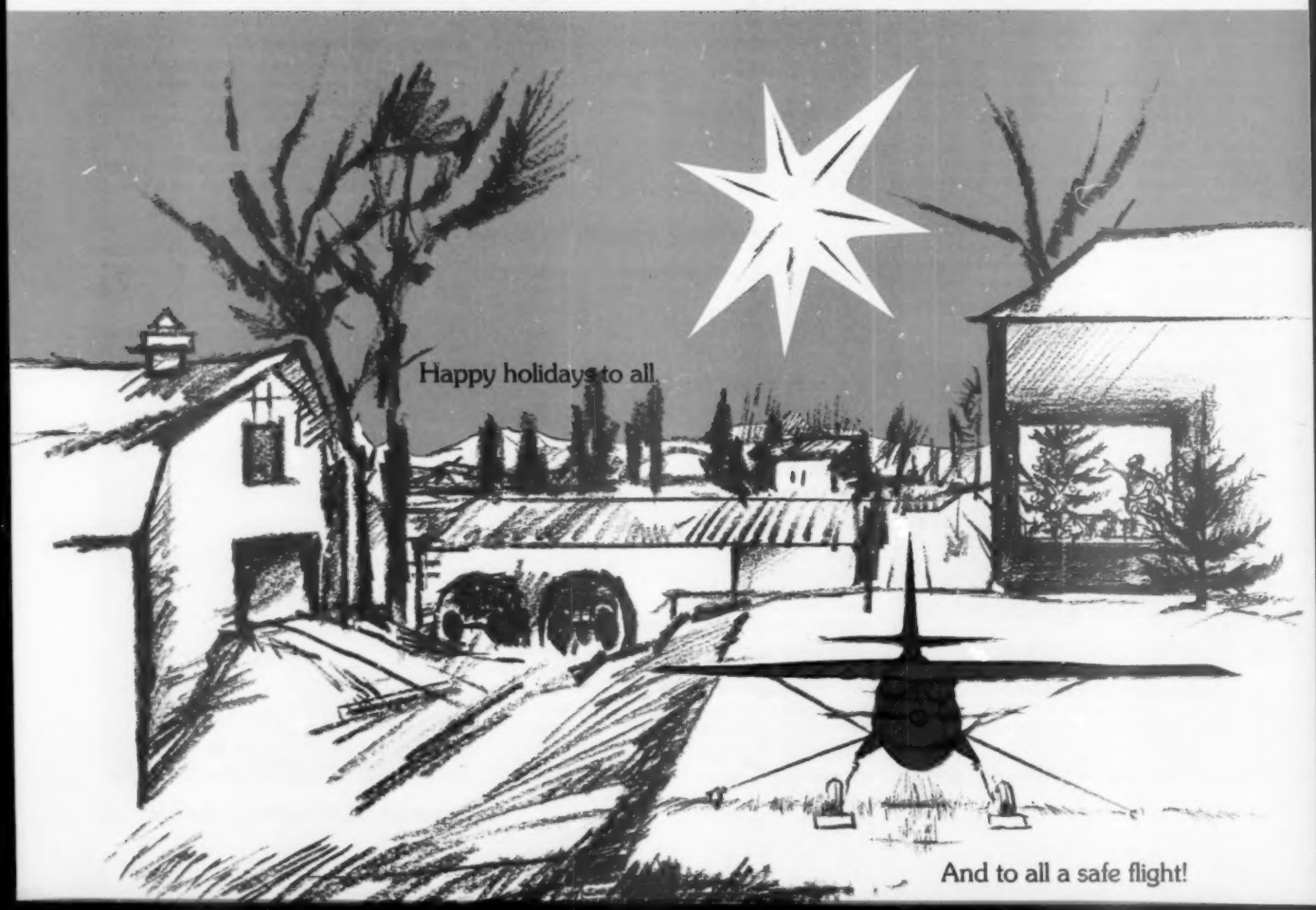
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